

**LEAD**  
REVISED AS OF 1 OCTOBER 1997

**SCOPE:** This guideline applies to all potential occupational exposures to lead at Defense National Stockpile Center Depots, their satellite locations, and any military locations storing this material for DNSC.

**RESPONSIBILITY:** It shall be the responsibility of the Depot Manager to institute and monitor the procedures outlined in this guideline in order to insure that the safety and health of all authorized personnel engaged in visiting, inspecting, handling, storing, and outloading lead from stockpile locations is maintained

**ACTION LEVEL:** Employee exposure to airborne concentrations of lead in excess of 30 ug/m<sup>3</sup> averaged over an 8 eight hour period.

**PERMISSIBLE EXPOSURE LIMITS:** The Department of Labor, Occupational Safety and Health Administration (OSHA) has established permissible exposure limits (PEL's) for lead in the workplace. No employee shall be exposed to airborne concentrations of lead in excess of 50ug/m<sup>3</sup> of air as an 8 hour time weighted average (TWA).

**EXPOSURE MONITORING:** Air sampling frequency and patterns shall be equal to or more stringent than those monitoring requirements listed in 29 CFR 1910.1025. Purchasers, their agents, service contractors, and other government agencies shall be responsible for monitoring the airborne lead exposure levels to their employees during lead work activities they conduct at DNSC stockpile storage activities.

**ENVIRONMENTAL:** An initial determination of airborne concentrations of lead shall be made in every area where lead is being worked. Such area sampling shall be representative of the daily activities conducted in those areas. Previous monitoring records (if conducted within the previous 12 months) shall be sufficient to fulfill this requirement, if it can be documented that conditions of storage of the lead in those areas where monitoring was conducted, remains unchanged.

Position (personal) sampling for lead shall be conducted during the handling, banding, or shipment of lead until a reasonable assessment or "Baseline" of the airborne concentrations for a particular lead work activity can be determined. Once a suitable number of samples have been taken during a lead work activity and it can reasonably be determined that the levels do not exceed the action level, no further sampling need be conducted during that particular work activity. If the levels are above the action level but below the permissible exposure limit, monitoring shall be repeated every 6 months until such time as two consecutive measurements taken 7 days apart are below the action level. If the levels are found to be above the permissible exposure limit monitoring shall be repeated quarterly until such time as two consecutive measurements taken 7 days apart,

are below the PEL. Any change or alteration to the work method or project, would represent a potential change in the airborne concentration of lead, therefore sampling would resume until such time as a new "Baseline" has been established.

When there is a plan to relocate or excess any stockpile lead, the Directorate of Strategic Materials Management Safety, Health staff (DNSC-MH) shall be contacted prior to any movement or activity related to that lead storage location. Any movement of the stockpile lead from its present storage area will necessitate area and personal sampling.

**METHODS OF MEASUREMENT:** Determination of airborne concentrations of lead shall be accomplished in accordance with the following procedure:

1. Calibrate a personal sampling pump at the start of the work shift to a flow rate of 1.5 liters per minute with a representative filter cassette in line.
2. Assemble a closed face filter cassette with a 37mm mixed cellulose ester membrane filter with a 0.8 pm pore size and attach to the sampling pump.
3. Turn the pump on and begin sample collection. Since it is possible for a filter to become plugged by heavy particulate loading limit the time for each cassette to 2 to 2-1/2 hours.
4. Total sampling time for each person or area must equal the entire exposure period.
5. Note the sampling time and flow rate for each cassette.
6. Calibrate the pump at the end of each shift to determine that the flow rate hasn't changed.
7. Have the cassette analyzed at a certified laboratory.

#### **OBSERVATION OF MONITORING AND ACCESS TO MONITORING**

**RECORDS:** DNSC, other Federal employees, or their designated representatives shall have an opportunity to observe any monitoring and have access to the monitoring records thereof in accordance with 29 CFR 1910.1025.

**RECORDKEEPING:** All environmental and personal monitoring exposure records shall be maintained by DNSC for a period of at least 40 years or the duration of employment plus 20 years, whichever is longer. One copy of these records will be kept on file at DNSC Safety and Health Office and one copy will remain at the respective Depot storage location.

All affected personnel shall have access to any record of environmental or personal monitoring that relates to their exposure. Any person who has been exposed to lead shall

be notified in writing within five days of the analytical finding. This person shall also be notified of the corrective actions being taken if levels were found to exceed the PEL.

**CONTROLS:** Due to the nature of the lead that is being handled and the fact that in most locations the lead is stored outside, normal engineering controls can not be used to reduce the airborne levels of lead. Therefore, DNSC management will utilize administrative controls (job rotation) to ensure that DNSC employees and all other persons involved in DNSC work-related activities in and around areas where lead is stored, are not exposed to airborne concentrations of lead exceeding the current OSHA exposure limits. Records shall be kept of the name of each employee, the duration and exposure levels at each work station.

When administrative controls are not enough to maintain lead levels below 50ug/m<sup>3</sup> these controls must be supplemented with the use of respiratory protection to maintain employee exposures to the lowest feasible level.

**RESPIRATORY PROTECTION PROGRAM:** The selection, use, and proper maintenance of respirators will be in accordance with the written standard operating procedures of the DNSC Respiratory Protection Program.

Work tasks which require the use of respirators and some form of physical exertion on the part of workers directly under DNSC supervision, shall be assigned only to those employees who have been examined by a licensed physician who has determined that the employee is capable of performing their assigned duties while wearing respiratory protection without potential impairment to their health and safety. Useful information that should be provided to the physician includes: a) description of the employee's duties as they relate to their exposure, b) types of respirators that the employee will wear when carrying out their work assignments, and, c) any information from previous medical examinations of the employee which may not otherwise be available to the examining physician.

**PROTECTIVE CLOTHING:** DNSC shall provide each person subject to lead exposure: coveralls or similar fullbody protective clothing (disposable preferred), head coverings, and gloves. Sleeves and pant cuffs shall fit snugly around the individuals wrist and ankles. This protective clothing shall be worn in areas where there is exposure to airborne lead in excess of the action level.

If the depot uses cloth coveralls, it shall provide for maintenance and laundering of the soiled protective clothing. The clothing shall be placed in a closed container labeled as follows;

**CAUTION: CLOTHING CONTAMINATED WITH LEAD, DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF CONTAMINATED WASH**

## **WATER IN ACCORDANCE WITH LOCAL, STATE, OR FEDERAL REGULATIONS**

If laundering is to be done by a private contractor, DNSC shall inform the contractor in writing of the potentially harmful effect of exposure to lead and of safe practices required in the laundering of lead soiled work clothes.

All protective clothing shall be vacuumed before removal. Clothing shall not be cleaned by blowing dust from the clothing or shaking. If disposable clothing is used it shall be discarded into double polyethylene lined containers with tight-closing lids. When full, the polyethylene bags shall be sealed appropriately, labeled, and disposed of at an approved site. Contact State and local environmental or your servicing DRMS for specific information regarding proper disposal and approved disposal sites.

**HOUSEKEEPING:** All indoor areas shall be maintained as free as practicable of accumulations of lead dust. Clean-up of floors and other surfaces where lead has accumulated shall be by vacuuming or other methods which minimize the likelihood of lead dust becoming airborne. Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective. Where vacuuming methods are selected, the vacuums shall be equipped with a HEPA filter and used and emptied in a manner which minimizes the reentry of lead into the workplace. Compressed air shall not be used to remove lead from any surface.

**CHANGE ROOMS AND CLOTHING LOCKERS:** At all DNSC lead storage locations, change rooms or similarly designated areas which include areas for changing clothes, washing and showering shall be made available and shall be used by all persons, when work activities performed in lead storage areas produce airborne concentrations of lead in excess of the PEL. Washing and showering shall be required for all work tasks unless the Depot Manager can reasonably determine that the work operations to be conducted will create an exposure of not greater than 50 ug/m<sup>3</sup> on an 8 hour time weighted average.

These change rooms shall be equipped with two separate lockers per person, so separated and isolated as to prevent contamination of the person's street clothes from their work clothes.

**LUNCH ROOMS:** Lunchrooms shall be provided for those personnel who work in areas where their exposure is above the PEL. The rooms shall be temperature controlled and be readily accessible to employees. Employees are to wash their hands and face prior to eating. Employees shall not be allowed to enter lunchrooms with protective clothing or equipment unless surface lead dust has been removed by vacuuming.

**TRAINING:** All employees before assignment to a job with potential exposure shall receive the DNSC developed training program. At a minimum the training shall consist of

1. The content of the OSHA Lead Standard 29 CFR 1910.1025.
2. The nature of the operation which could result in exposure to lead above the action level.
3. The purpose, proper selection, fitting, use, and limitations of respirators.
4. The purpose and a description of the medical surveillance program, and the medical removal protection program.
5. The work practices associated with the employees job assignment. A copy of the OSHA Lead Standard shall be available for review by employees.

**MEDICAL EXAMINATIONS** Medical examinations provided for DLA/DNSC employees by United States Public Health Service (USPHS) or other medical contract service shall include, but not be limited to those parameters listed in Title 29 CFR Part 1910.1025.

**BIOLOGICAL MONITORING:** Employees who are or may be exposed above the action level are to receive biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin. If initial testing show elevated blood levels as described below the frequency of retesting shall be as follows:

<b>BLOOD LEAD LEVEL</b>	<b>FREQUENCY</b>
less than 40 ug/ 100 g of whole blood.	every 6 months
at or above 40 ug/ 100 g of whole blood	every 2 months until two consecutive samples are below, 40 ug/100 g
above 50 ug/ 100 g of whole blood	monthly until two consecutive samples are below 40 ug/100 g

**EMPLOYEES WHO HAVE A BLOOD LEAD LEVEL ABOVE 50 UG/100 G ARE NOT TO BE ASSIGNED TO TASK INVOLVING WORKING WITH LEAD**

**MEDICAL RECORDS:** A copy of all medical records relating to lead exposure and medical examinations, shall be maintained as part of the employees permanent medical file with the USPHS. All DNSC employees shall be made aware of this record retention and the employees requirement to transfer these records when they leave the service of the DNSC.

**ACCESS:** The content of these records shall be made available to those parties referred to in Title 29 CFR Part 1910.1025 and 1910.20.

**SIGNS:** Signs shall be posted at each work area where air sampling documented levels above the PEL. The signs shall read as follows;

**WARNING  
LEAD WORK AREA  
POISON  
NO SMOKING OR EATING**

CAUTION signs shall be posted on all containers used for the collection of lead contaminated clothing. The sign shall read as follows; **Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking.**

**LEAD CLEAN UP PROCEDURES:** In the event that lead is released into a storage environment, the following methods will be utilized to clean the area.

1. Substitute wet methods for dry methods, when it is warranted, otherwise use dry vacuum cleaners that are equipped with a storage receptacle containing a polyethylene bag and a high efficiency particulate filter (HEPA). The vacuum shall be thoroughly cleaned prior to use for any other non lead operation.
2. Employees performing clean-up shall wear all the appropriate personal protective equipment.
3. A detailed record of the clean-up and personnel performing it shall be maintained.
4. After cleanup, bulk dust samples from the floor and selected horizontal surfaces are to be taken to determine the level of cleanliness and if further clean-up is necessary.

**DISPOSAL OF LEAD WASTE:** Disposal of lead waste shall be consistent with Federal, State and Local regulations. All lead wastes shall be placed in containers and properly labeled for disposal.

1. Collect all lead contaminated waste in a manner which will prevent the release of lead into the air.
2. Place the collected material into a closed metal container.
3. Label the waste in a manner whereby the label will not be easily dislodged.
4. The lead contaminated waste will then be disposed of in an approved disposal site. Contact State and local Environmental agencies for more particular information regarding disposal requirements and specific approved disposal sites.

5. DRMS may also be used for the disposal of this material.